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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,976	01/31/2001	Ricardo V. Martija	APP 1208-US	6036

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EXAMINER

LAZARO, DAVID R

ART UNIT	PAPER NUMBER
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2155

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/774,976

Applicant(s)

MARTIJA ET AL.

Examiner

David Lazaro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application:
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-22 are pending in this Office Action.

Specification

2. The disclosure is objected to because of the following informalities:
 - a. Please provide Page 4 of the Specification as it is missing from the case file.
 - b. Please provide the reference "Applied Multivariate Analysis" pp.373-383 as cited and incorporated by reference on Page 15 of the Specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 7, 12, 13, 15-20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication 2002/0087666 by Huffman et al. (Huffman).
5. The examiner notes that although Huffman is likely to be antedated by a 37 CFR 1.131 affidavit or declaration due to the filing date, other prior art with similar

determinations of a geographical region of a host based on a vector distance calculation are also likely to be antedated. As such, Huffman is considered the best available prior art as Huffman presents the most comprehensive method as found in the examiner's search and is therefore applied in this rejection.

6. With respect to Claim 1, Huffman teaches a method for determining a geographical region of a host in a network (Page 2 [0012]), said method comprising the steps of: selecting other hosts in the network such that the selected other hosts are located in a plurality of geographical regions that are determinable (Page 3 [0035]); determining, at a plurality of points in the network, first sets of information associated with the selected other hosts, respectively (Page 3-4 [0040]); determining, at the plurality of points, second sets of information associated with the host (Page 4 [0042]); and determining the geographical region of the host based on the geographical region of one or more of the selected other hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information (Page 4 [0043] Note: The examiner broadly interprets the claim limitations such that each region of Huffman has one selected other host and only one set of information "associated" with it, thus making the set of information from that host the mean).

7. With respect to Claim 2, Huffman teaches all the limitations of Claim 1 and further teaches wherein the step of determining the first sets of information comprises the step of: determining time delays in communicating with the selected other hosts from the plurality of points, respectively (Page 3-4 [0040]).

8. With respect to Claim 7, Huffman teaches all the limitations of Claim 1 and further teaches wherein the step of determining the second set of information comprises the step of: determining time delays in communicating with the host from the plurality of the points, respectively (Page 4 [0042]).

9. With respect to Claim 12, Huffman teaches all the limitations of Claim 1 and further teaches the step of: receiving, from the plurality of points, the first sets of information associated with the selected other hosts; and merging the first sets of information received for each of the other hosts (Page 4 [0041]).

10. With respect to Claim 13, Huffman teaches all the limitations of Claim 1 and further teaches the step of: receiving, from the plurality of points, the second sets of information associated with the host; and merging the second sets of information received for the host (Page 4 [0042]-[0043]).

11. With respect to Claim 15, Huffman teaches all the limitations of Claim 1 and further teaches wherein the step of determining the geographical region of the host comprises the steps of: classifying the selected other hosts according to their respective geographical regions (Page 3 [0035]); determining mean vectors of the first sets of information associated with the classified selected other hosts (Page 4 [0041]) The examiner broadly interprets the claim limitations such that each region of Huffman has one selected other host and only one set of information "associated" with it, thus making the set of information from that host the mean); and determining Mahalanobis distances of the determined mean vectors from the second sets of information (Page 4 [0043]-[0044]).

12. With respect to Claim 16, Huffman teaches all the limitations of Claim 15 and further teaches the steps of: selecting one of the determined mean vectors with shortest Mahalanobis distance from the second sets of information (Page 4 [0043]-[0044]); and determining the geographical region of the host to be same as the geographical region of the classified selected other hosts whose respective determined mean vector is the selected one of the determined means (Page 4 [0043]-[0044]).

13. With respect to Claim 17, Huffman teaches a system, comprising: a plurality of first processors that determine first sets of information (Page 3-4 [0040]) associated with a plurality of first hosts located in a plurality of geographical regions that are determinable (Page 3 [0035]), and determine second sets of information associated with a second host whose geographical region is unknown (Page 4 [0042]); and at least a second processor that receives the first and second sets of information (Page 4 [0043]), determines means of the first sets of information by geographical region (Page 4 [0041]). The examiner broadly interprets the claim limitations such that each region of Huffman has one selected other host and only one set of information "associated" with it, thus making the set of information from that host the mean), and determines the geographical region of the second host to be the same as the geographical region of the first hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information (Page 4 [0043]).

14. With respect to Claim 18, Huffman teaches all the limitations of Claim 17 and further teaches wherein the plurality of first processors are placed at different points in a network that includes the plurality of first hosts and the second host (Page 3 [0035]).

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15. With respect to Claim 19, Huffman teaches all the limitations of Claim 17 and further teaches wherein the first sets of information include traceroute information associated with the plurality of first hosts, respectively (Page 3 [0034]).

16. With respect to Claim 20, Huffman teaches an apparatus, comprising: a memory including, program code that receives first sets of information (Page 3-4 [0040]) associated with a plurality of first hosts located in a plurality of geographical regions that are determinable (Page 3-4 [0035]), receives second sets of information associated with a second host whose geographical region is unknown (Page 4 [0042]), and determines the geographical region of the second host to be the same as the geographical region of the first hosts whose respective mean of first sets of information has a shortest weighted vector distance from the second sets of information; and a processor that executes the program code (Page 4 [0043] Note: The examiner broadly interprets the claim limitations such that each region of Huffman has one selected other host and only one set of information "associated" with it, thus making the set of information from that host the mean).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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18. Claims 3, 8, 21 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Huffman in view of U.S. Patent 6,724,733 by Schuba et al. (Schuba).

19. With respect to Claim 3, Huffman teaches all the limitations of Claim 1 including the first sets of information being determined based on a characteristic of a communication route between a plurality of points in a network to associated selected other hosts (Page 3-4 [0040]). Huffman does not explicitly disclose determining the number of hops in one or more routes. Schuba teaches a characteristic of a communication route can be the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method of Huffman and modify it as indicated by Schuba such that the step of determining the first sets of information comprises the step of: determining number of hops in one or more routes in the network from the plurality of points to the selected other hosts, respectively. Since the number of hops may give indication as to an approximate distance, one would be motivated to have this as there is need for determining the geographic location of a host (Page 1-2 [0011] of Huffman).

20. With respect to Claim 8, Huffman teaches all the limitations of Claim 1 including the second sets of information being determined based on a characteristic of a communication route to a host in a network from a plurality of points (Page 4 [0042]). Huffman does not explicitly disclose determining the number of hops in each route. Schuba teaches a characteristic of a communication route can be the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method of Huffman and

modify it as indicated by Schuba such that the step of determining the second sets of information comprises the step of: determining a number of hops in each route in the network to the host from the plurality of the points, respectively. Since the number of hops may give indication as to an approximate distance, one would be motivated to have this as there is need for determining the geographic location of a host (Page 1-2 [0011] of Huffman).

21. With respect to Claim 21, Huffman teaches all the limitations of Claim 20 and further teaches the first sets of information being determined based on a characteristic of a communication route, such as time delays (Page 3 [0027] and [0034]), as determined from a plurality of points in a network that includes the plurality of first hosts (Page 3-4 [0040]). Huffman does not explicitly disclose including the number of hops to the plurality of first hosts. Schuba teaches a characteristic of a communication route can be the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the apparatus of Huffman and modify it as indicated by Schuba such that the first sets of information includes time delays and number of hops to the plurality of first hosts, as determined from a plurality of points in a network that includes the plurality of first hosts. Since the number of hops may give indication as to an approximate distance, one would be motivated to have this as there is need for determining the geographic location of a host (Page 1-2 [0011] of Huffman).

22. With respect to Claim 22, Huffman teaches all the limitations of Claim 20 and further teaches the second sets of information being determined based on a

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characteristic of a communication route, such as time delays (Page 3 [0027] and [0034]), as determined from a plurality of points in a network that includes the plurality of first hosts and the second host (Page 3-4 [0040] and [0042]). Huffman does not explicitly disclose including the number of hops to the second host. Schuba teaches a characteristic of a communication route can be the number of hops in one or more routes (Col. 5 lines 32-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to take the apparatus of Huffman and modify it as indicated by Schuba such that the second sets of information includes time delays and number of hops to the second host, as determined from a plurality of points in a network that includes the plurality of first hosts and the second host. Since the number of hops may give indication as to an approximate distance, one would be motivated to have this as there is need for determining the geographic location of a host (Page 1-2 [0011] of Huffman).

23. Claims 4-6, 9-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huffman in view of Periakaruppan et al. "GTrace - A Graphical Traceroute Tool", USENIX LISA'99 (GTrace).

24. With respect to Claim 4, Huffman teaches all the limitations of Claim 1 and further teaches the use of traceroute for network measurements (Page 3 [0034]) and that one can determine geographic information such as longitude and latitude for some IP addresses (Page 1 [0010]). Huffman does not explicitly disclose determining geographic information for the last identifiable routers in respective routes. However, as

noted by GTrace, traceroute would include the IP addresses of the last identifiable routers in a respect path (Page 1 Section 2 – “Traceroute”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Huffman and modify it as indicated by GTrace such that the method further comprises determining geographical information associated with last identifiable routers in respective routes in the network from the plurality of points to the selected other hosts. One would be motivated to have this as geographical path information of a network route can provide valuable insight to system administrators, network engineers, operators and analysts (Page 1, Abstract, of GTrace).

25. With respect to Claim 5, Huffman in view of GTrace teaches all the limitations of Claim 4 and further teaches wherein the step of determining the geographical information comprises the step of: determining longitudes of the last identifiable routers in the respective routes (Page 1 [0010] of Huffman).

26. With respect to Claim 6, Huffman in view of GTrace teaches all the limitations of Claim 4 and further teaches wherein the step of determining the geographical information comprises the step of: determining latitudes of the last identifiable routers in the respective routes (Page 1 [0010] of Huffman).

27. With respect to Claim 9, Huffman teaches all the limitations of Claim 1 and further teaches the use of traceroute for network measurements (Page 3 [0034]) and that one can determine geographic information such as longitude and latitude for some IP addresses (Page 1 [0010]). Huffman does not explicitly disclose determining geographic information for the last identifiable routers in respective routes. However, as

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noted by GTrace, traceroute would include the IP addresses of the last identifiable routers in a respect path (Page 1 Section 2 – “Traceroute”). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Huffman and modify it as indicated by GTrace such that the method further comprises determining geographical information associated with last identifiable routers in respective routes in the network from the plurality of points to the host. One would be motivated to have this as geographical path information of a network route can provide valuable insight to system administrators, network engineers, operators and analysts (Page 1, Abstract, of GTrace).

28. With respect to Claim 10, Huffman in view of GTrace teaches all the limitations of Claim 9 and further teaches wherein the step of determining the geographical information comprises the step of: determining longitudes of the last identifiable routers in the respective routes (Page 1 [0010] of Huffman).

29. With respect to Claim 11, Huffman in view of GTrace teaches all the limitations of Claim 9 and further teaches wherein the step of determining the geographical information comprises the step of: determining latitudes of the last identifiable routers in the respective routes (Page 1 [0010] of Huffman).

30. With respect to Claim 14, Huffman teaches all the limitations of Claim 1 and further teaches geographical information is included in the first sets of information (Page 3 [0035] and Page 4 [0043]), but does not explicitly disclose parsing names of the selected other hosts to determine geographical information about the selected other hosts. GTrace teaches parsing names of hosts to determine geographical information

(Page 5 – “Domain Parsing files”). it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the method disclosed by Huffman and modify it as indicated by GTrace such that the method further comprises parsing names of the selected other hosts to determine geographical information about the selected other hosts; and including the determined geographical region information in the first sets of information. One would be motivated to have this as there is need for determining the geographic location of a network host (Page 1-2 [0011] of Huffman).

Conclusion

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
32. U.S. Patent 6,223,209 by Watson “Distributed world wide web servers” April 24, 2001. Discloses selection of replicated server based on proximity calculated through use of traceroute information.
33. U.S. Patent 6,304,913 by Rune “Internet system and method for selecting a closest server from a plurality of alternative servers” October 16, 2001. Discloses use of hop count in determining the closes server.
34. U.S. Patent 6,665,715 by Hourì “Method and systems for locating geographical locations of online users” December 16, 2003. Discloses use of pre-provided information and geographic location databases in making determinations.
35. Padmanabhan et al. “Determining the Geographic Location of Internet Hosts” from www.research.microsoft.com/~padmanab/, November 2000. Full version is

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Microsoft Research Technical Report MSR-TR-2000-110. Discloses "GeoPing" which uses best matching delay vectors (through Euclidean distance) between known hosts and the unknown host to determine the location of the unknown. The full version of the article was not available at the time of this Office Action, but the examiner will try to acquire it for the next response.

36. Francis et al. "An Architecture for a Global Internet Host Distance Estimation Service" INFOCOM '99. Eighteenth Annual Joint Conference of the IEEE Computer and Communications Societies. Proceedings. IEEE, Vol. 1, 21-25 March 1999 Pages 210 – 217. Focuses more on a "virtual distance" mapping of internet hosts through metrics such as latency and bandwidth.

37. Moore et al. "Where in the world is netgeo.caida.org?" Cooperative Association for Internet Data Analysis (CAIDA), intended for INET 2000 publication. Printed from www.caida.org/outreach/papers/2000/inet_netgo/. Discloses more information on the tool NetGeo that was cited by Applicant and in the GTrace article.

38. Woolley "We Know Where You Live" Forbes Magazine, 11/13/00. Printed from www.forbes.com. Discloses a state of the art in terms of companies that deal with geographically locating network entities.

39. Raz "Finding a host's geographical location" Printed from Internet Archive of www.private.org/IP2geo.html. 09/22/1999. Discloses a few ways of determining geographic location through databases and by analyzing characteristics of traceroute output.

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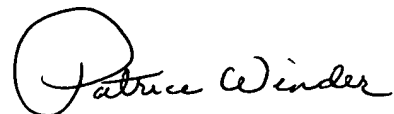
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lazaro whose telephone number is 703-305-4868. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on 703-308-6662. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Lazaro
June 25, 2004



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